



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

hm

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/415,121 10/08/99 KOBAYASHI

T 10873.444US

023552 MM91/0327
MERCHANT & GOULD
P O BOX 2903
MINNEAPOLIS MN 55402-0903

EXAMINER

NGO H
ART UNIT PAPER NUMBER

2831
DATE MAILED:
03/27/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/415,121

Applicant(s)
Kobayashi et al

Examiner
Hung V Ngo

Group Art Unit
2831



☒ Responsive to communication(s) filed on Feb 26, 2001

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-13 is/are pending in the application.

Of the above, claim(s) 9-13 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-8 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 3, 6

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2831

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 3, 5, 8-11, "external lead" is unclear. The examiner suggests --lead--.

Claim 1, line 9-10, "the bending depth d" lacks antecedent basis.

Claim 2, line 2, "external lead" is unclear. The examiner suggests --lead--.

Claim 4, line 2, "external lead" is unclear. The examiner suggests --lead--.

Claim 5, line 3, "external lead" is unclear. The examiner suggests --lead--.

Claim 7, line 1, "the bending radius R" lacks antecedent basis.

Claim 7, line 2, "external lead" is unclear. The examiner suggests --lead--.

Claim 7, line 2, "the outer surface" lacks antecedent basis.

Claim 7, line 2-3 "the bottom surface" lacks antecedent basis.

Claim 8, lines 2-3, "the bending depth d" lacks antecedent basis.

Claim 8, line 3, "the said lead" is unclear. Is it a first or a second lead?

Art Unit: 2831

Claims 3, 6 are included because of their dependencies.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sunada (US 5,508,557) in view of Junya (JP05047954) and Cozar et al

Sunada discloses an electronic element (4); a first lead (3) with an element placement pad (3c); and a second lead that is disposed at a distance from said element placement pad, wherein said electronic element, element placement pad, part of said first lead, and part of said second lead are sealed with a sealing resin (2), said first lead being bent in an S shape (Fig 1), the bending depth d thereof being at least as large as the thickness t of said first lead (Fig 1).

Re claim 3, wherein the vertical, horizontal, and height outer dimensions of said sealing resin are each no greater than 1.0 mm (col 3, lines 22-25).

Re claim 4, wherein widths of inner lead parts (3c) of said first and second external leads within said sealing resin are substantially uniform (Fig 2).

Art Unit: 2831

The limitations of "wherein the sealing resin is injected from a position on a longer side of the sealing resin package, said position being offset toward one shorter side thereof" of claim 6 have been considered, but does not result in a structural difference. The presence of process limitations in product claims, which product does not otherwise patentably distinguish over prior art, cannot impart patentability to that product. In re Stephens 145 USPQ 656 (CCPA 1965).

The teaching of Sunada as discussed above does not disclose the lead having thickness t of less than 0.1 mm and, and the thickness T of said resin on a non-device side of said element placement pad being smaller than said bending depth d (re claim 1), wherein the spacing between said element placement pad and said second lead is no greater than 0.12 mm (re claim 2), wherein the thickness of said electronic element is substantially the same as the thickness t of said first external lead (re claim 5), wherein the bending radius R on the outer surface of a bent part of said first external lead near the bottom surface of said sealing resin is at least 0.05 mm and is no greater than the lead thickness t (re claim 7), wherein the sealing resin contains a filler, whose particle diameter is not greater than half the bending depth d of the said lead or less than 50 microns (re claim 8).

Re claim 1, Cozar et al teach that it is well known in the electrical art to provide a lead having thickness of less than 0.1 mm (col 4, lines 35-45) and having a mechanical strength to mount on the printed circuit board (col 2, lines 30-31). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the lead having less than 0.1

Art Unit: 2831

mm in thickness for the purpose of having a mechanical strength to mount on the printed circuit board.

Re claim 1, ~~T~~unya discloses the thickness T of said resin on a non-device side of said element placement pad being smaller than said bending depth d (Fig 1) for reinforcing the lead and preventing deformation during shipping steps. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the leads of Sunada by employing the thickness T of said resin on a non-device side of said element placement pad being smaller than said bending depth d for reinforcing the lead and preventing deformation during shipping steps. SR 3/24/01

Re claim 2, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the spacing of Sunada by employing the spacing of no greater than 0.12 mm between said element placement pad and said second lead, since it has been held that where the general conditions of a claim are disclosed in prior art, discovering optimum ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Re claim 5, Sunada recites "the size of the diode 1 as a whole can be made as small as possible" (col 4, lines 45-50). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the thickness of the electronic element of Sunada by employing less than 0.1mm in thickness for the purpose of mounting a plurality of electronic components on a printed circuit board as taught by Sunada.

Art Unit: 2831

Re claim 7, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the bending radius R of Sunada by employing at least 0.5 mm, since it has been held that where the general conditions of a claim are disclosed in prior art, discovering optimum ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Re claim 8, it is well known in the electrical art to use a filler having diameter of less than 50 microns with the sealing resin for dissipating heat. it would have been obvious to one having ordinary skill in the art at the time the invention was made to include the filler with the sealing resin of Sunada for the purpose of dissipating heat.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung V. Ngo whose telephone number is (703) 308-7614. The examiner can normally be reached on Tuesday to Friday from 8:30 am to 06:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine Kincaid, can be reached on (703) 308-0640.

The fax phone number for this Group is (703) 305-3431 or (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Jean A. Reichard 3/24/01
Jean A. Reichard
Primary Examiner